

**Title of project: Greenhouse IPM Advancement**

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**Abstract:** The NY Farm Viability Institute funded a 2 year project designed to evaluate current pest management practices, formulate a plan to improve those practices and measure the impact of adopted changes. The project emphasized improved scouting/record keeping and improved control plans for specific pests that emphasize the use of biocontrols and least-toxic materials. One-on-one mentoring occurred at their operations so customized IPM initiatives could be provided for each grower. At the end of the project all participants increased their education and training efforts, added more on-site educational resources for employees and have incorporated biologicals and least-toxic pesticides into their management plans. All are using IPM/Biological Control in their promotional materials. In addition they all reduced the number of pesticide applications, the amounts used in each application and the area treated which also reduced their chemical budget. They also felt that crop losses to pests were lower and plant quality had improved.

**Justification:** Despite extensive extension educational programming and increased interest many growers have been slow to adopt IPM practices. This project is designed to give growers the confidence and training needed for them to establish an ever-improving IPM program.

**Objectives:** Determine individual growers' current pest management practices, future goals and supply the training, assistance and encouragement needed for them to proceed towards those goals on an independent basis. Ultimately there will be an increased use of IPM techniques with these growers and other NY growers who learned from their successes.

**Procedures:** Meetings were held with growers at their individual operations. *The Elements of Greenhouse IPM* and interviews were used to determine the current status of their pest management program, their pest management issues and concerns and their hopes for the future. Some immediate improvements were suggested and their progress was monitored throughout the season via on-site meetings, email and phone. Assistance was given whenever needed and growers were supplied with pest management resources. Meetings were held at the end of the season to review events and begin the planning process.

**Results:**

Grower A has a retail operation, does the pesticide applications and has a designated employee to scout. Both are involved in treatment decisions. Goals included marketing as a "Green" operation so the focus will be on using biologicals, least toxic materials and organics. Improvements in record keeping, scouting techniques and some structural changes were suggested to enhance the likelihood of success with this approach and are being incorporated.

This grower now promotes their IPM program extensively on their web site. He has made great strides in structural changes for weed management and disease quarantine, improved insect and disease detection and increased use of biological controls. Despite serious and unavoidable losses from the introduction of a viral disease he was better prepared and able to

contain it and the insect vector that carries it than he would have been without this program. Their Elements of IPM score increased from 47% to 71% (+24%).

Grower B is also a retail operation and has a designated employee to scout and do applications along with the normal responsibilities of a grower. The owner, the former owner and the grower/scout are involved in treatment decisions. Goals included reducing their reliance on hard pesticides, maintaining or improving plant quality and controlling costs. In 2007 they trialed biologicals in their herbs and vegetables and were pleased with the results. In 2008 have hired an additional employee to assist the grower in scouting and other duties.

With the success of this program this grower intends to further integrate biologicals into their pest control plans. They have made dramatic decreases in their use of pesticides and feature IPM on their home page. Pesticide applications went from 54 in 2006 to only 21 in 2008 and many of those were small, spot sprays rather than the whole-house approach they had been relying on. In particular they reduced their use of Thiodan (Endosulfon) from 15 applications in 2007 to only 2 in 2008 (208oz ai vs 36oz - a reduction of 83%). Their Elements of IPM score went from 51% to 81% (+30%).

Grower C is a large wholesale operation and has a designated employee to do applications. Scouting was contracted to a private consultant. Goals included using biologicals and organics in their herb production. A devastating fire in April ended production in 2007 however they are up and running again and fully participated in 2008. They have hired a designated employee to scout.

By the end of this project this grower instituted a full biological program into their herb production, reducing his spray program to occasional spot spraying and includes his new pest management approach in promotional literature for his customers. While the changes in pesticide use and plant losses can't be measured until the end of this production cycle the grower feels there has been a dramatic positive change in both. Despite the devastating fire in 2006 and other obstacles that delayed his full participation earlier, his Elements of IPM score improved from 66% at the start of the project to 79% at the end (+13%).

All three have established a relationship with suppliers of biological controls. All three growers reduced the number of pesticide applications, the amounts used in each application and the area treated which also reduced their chemical budget. They also felt that crop losses to pests were lower and plant quality had improved. All are using IPM/Biological control in their promotional efforts. Part of the practice change for these growers may be the result of educational events that each of the three operations sent employees to learn more about IPM and biological control.

Elements of Greenhouse IPM scores went from a starting average of 55% to a final average of 76.5%, an average improvement of 22% (range 13-30%) with two operations reaching 80% (80% is considered a passing grade in those commodities that use Elements scores for IPM certification). All participants increased their education and training efforts, added more on-site educational resources for employees and have incorporated biologicals and least-toxic pesticides into their management plans. All have established relationships with suppliers of biologicals and are using IPM/Biological Control in their promotional materials. One operation made structural improvements specifically for pest management (erecting a quarantine area, installing weed barriers) or took IPM into consideration during construction (environmental controls, concrete flooring) or for in planning for future

expansions/modifications. Pesticide applications fell, with one grower showing a nearly 50% decrease in the number of applications and an 83% decrease in the use of their highest risk pesticide. All felt that their losses have decreased and that plant quality has improved. All continue to plan and make improvements.

**Implications:** All participating growers are poised to reduce the risks associated with pest management and have already made progress in that direction. They will serve as spokespersons for IPM regionally, statewide and, in some instances, nationally. Their operations will serve as IPM flagships to springboard future educational events.